

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/006377

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 B23C5/22

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 B23B B23C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 679 968 A (HASEGAWA RYOEI ET AL) 14 July 1987 (1987-07-14)	1-12, 14-26, 28
Y	figures 1,2,9,17-19	13,27
X	EP 1 013 365 A (PLANSEE TIZIT AKTIENGESELLSCHA) 28 June 2000 (2000-06-28)	1,2, 5-12, 14-20, 22-26, 28,32,33
	figures 3-5	
X	DE 42 44 316 A (KRUPP WIDIA GMBH) 30 June 1994 (1994-06-30)	17-19, 29-31
Y	column 3, lines 40-48; figures 1-3	13,27
X	US 2003/059262 A1 (MEN YURI) 27 March 2003 (2003-03-27)	30,31
	paragraph '0101!; figures 4,6,10	
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

9 July 2004

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2260 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Kornmeier, M

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 164 878 A (SATRAN AMIR ET AL) 26 December 2000 (2000-12-26) figures 3-6	1-29
A	US 6 017 171 A (KARLSSON ROLF) 25 January 2000 (2000-01-25) abstract; figures 1-3,5	32,33

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/006377

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4679968	A	14-07-1987	JP 62184912 U JP 62008004 U DE 3621588 A1	25-11-1987 19-01-1987 02-01-1987
EP 1013365	A	28-06-2000	AT 3111 U1 DE 59901243 D1 EP 1013365 A1	25-10-1999 23-05-2002 28-06-2000
DE 4244316	A	30-06-1994	DE 4244316 A1 CN 1090801 A WO 9414558 A1	30-06-1994 17-08-1994 07-07-1994
US 2003059262	A1	27-03-2003	EP 1429882 A1 WO 03026824 A1	23-06-2004 03-04-2003
US 6164878	A	26-12-2000	IL 119841 A AT 233145 T AU 3862297 A AU 733182 B2 AU 5408398 A BR 9714028 A BR 9714029 A CA 2273870 A1 CA 2274480 A1 CN 1240378 A , B DE 29721160 U1 DE 69719361 D1 DE 69719361 T2 EP 0964763 A1 EP 0944451 A1 HU 0002872 A2 HU 0002918 A2 WO 9826892 A1 WO 9826893 A1 JP 2001508363 T JP 2001506187 T KR 2000057592 A KR 2000057593 A NO 992444 A NZ 335788 A PL 184720 B1 RU 2186661 C2 TR 9901884 T2 TW 409084 B US 6234724 B1 ZA 9708755 A	29-02-2000 15-03-2003 15-07-1998 10-05-2001 15-07-1998 09-05-2000 09-05-2000 25-06-1998 25-06-1998 05-01-2000 19-02-1998 03-04-2003 22-01-2004 22-12-1999 29-09-1999 28-12-2000 28-12-2000 25-06-1998 25-06-1998 26-06-2001 15-05-2001 25-09-2000 25-09-2000 06-08-1999 23-06-2000 31-12-2002 10-08-2002 22-05-2000 21-10-2000 22-05-2001 11-05-1998
US 6017171	A	25-01-2000	SE 505511 C2 AT 227184 T CA 2206596 A1 CN 1169686 A , B DE 69528774 D1 DE 69528774 T2 EP 0797489 A1 JP 10510764 T PL 324040 A1 RU 2126736 C1 SE 9404369 A	08-09-1997 15-11-2002 20-06-1996 07-01-1998 12-12-2002 18-09-2003 01-10-1997 20-10-1998 11-05-1998 27-02-1999 16-06-1996

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/006377

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6017171	A	WO 9618473 A1	20-06-1996